

CLAIMS

1. An expendable alignment ring adapted for centering opposed annular surfaces of a transmission torque converter and an engine crankshaft wherein the annular surfaces are sloped surfaces of revolution centered on an axis, the alignment ring comprising:

5 an annular body having first and second ends formed by axially spaced inner and outer coaxial sloped annular surfaces of revolution centered on an axis and extending between inner and outer peripheries;

 the body formed of a material that is solid at normal room temperatures but is compressible when subjected to end loads beyond a
10 prescribed limit.

2. An alignment ring as in claim 1 wherein at least one of the sloped annular surfaces is conical.

3. An expendable alignment ring adapted for centering opposing conical surfaces of a transmission torque converter and an engine crankshaft during assembly of the torque converter to the crankshaft, the alignment ring comprising:

5 an annular body having first and second ends formed by axially spaced inner and outer coaxial conical surfaces extending between inner and outer peripheries;

 the body formed of a material that is solid at normal room temperatures but is compressible when subjected to end loads beyond a
10 prescribed limit.

4. An alignment ring as in claim 3 wherein the material of the ring softens at engine operating temperatures.

5. An alignment ring as in claim 4 wherein the material of the ring is thermoplastic.

6. An alignment ring as in claim 5 wherein the thermoplastic is high density polyethylene.

7. A method of centering a torque converter and an engine crankshaft at a connecting interface, the torque converter having a pilot with an outer end and a conical guide surface spaced inward from the outer end, and the crankshaft having a recess for receiving the pilot and a conical chamfer at an outer end of the recess, the conical guide surface and the conical chamfer being positioned in spaced opposing axial alignment upon connection of the torque converter and the crankshaft, the method comprising:

providing an alignment ring having an annular body including first and second ends formed by axially spaced inner and outer coaxial conical surfaces extending between inner and outer peripheries, the body being formed of a material that is solid at normal room temperatures but is compressible when subjected to end loads beyond a prescribed limit;

placing the ring onto the pilot;

centering the torque converter to the crankshaft by inserting the pilot into the recess such that the conical guide surfaces of the pilot and the conical chamfer engage the conical surfaces of the alignment ring which operates to center the pilot within the recess; and

fastening the torque converter to the engine while the pilot and the recess remain centered.

8. A method as in claim 7 wherein the material of the ring softens at engine operating temperatures.

9. A method as in claim 8 wherein the material of the ring is thermoplastic.

10. A method as in claim 9 wherein the thermoplastic is high density polyethylene.

11. A method as in claim 7 wherein the method includes forcing the alignment ring over an enlarged end of the pilot to retain the ring on the pilot prior to assembly.